The Tennessee Conservationist


**By Bill Avant**

Have you ever found yourself in a quandary, standing in the check- out line of your favorite grocery store, debating with yourself over the question, "paper or plastic?" You have already gone through the process of deciding, organic or non-organic, packaged or bulk, crunchy or smooth peanut butter, and you have filled your 5-gallon water jug. Now, the last remaining question seems to be the most difficult, as if the cashier, waiting on the answer, is going to condemn you for making the wrong decision. "What should I do?"

Let me assure you that if you have doubts about the right choice, you're not alone.

About 40 billion grocery bags are used each year in the United States: 30 billion are plastic, 10 billion paper. This straightforward question is debated, quite well, on both sides of the issue. An expert in the plastics industry will argue persuasively that plastics are by far the preferable environmental choice; but a paper industry leader will make paper seem the better solution. According to Sevitz's A Comparative LCA (Life Cycle Assessment) Of Plastic and Paper Bags, plastic bags have a lower impact for use ratio of up to 2.5 plastic bags to one paper bag, when considering the life cycle. Whether it really matters is another question.

The authors of The Consumer's Guide to Effective Environmental Choices, released by The Union of Concerned Scientists (Three Rivers Press, 1999), argue that bigger consumer choices (such as cars, food, houses, and appliances) that people are making on a daily basis are highly more environmentally significant then the choice of paper or plastic when you are at the check out line.

No matter what the answer, we love our grocery bags, to the tune of 40 billion bags a year. According to the Food Marketing Institute, the average American makes 2.3 trips to the grocery store each week and walks away with five to 10 bags each time (which is not hard to do if you're feeding a family of four). This comes to an approximate total of 600 to 1,200 bags per shopper each year.

Things to really consider in making your decision are: What resources are required to make the bags you use? Which type of bag will be easier for you to reduce the amount of trash you generate? Can they be reused? And are they likely to be recycled?

**Consider the Resources**

Both paper and plastic bag production use natural resources and produce numerous pollutants. Both are fairly heavy-duty industrial processes, large in scale, and both are heavily involved in extraction of raw materials.

There are differences in the raw materials being used. Paper bags are made out of trees. According to the American Forest and Paper Association about 700 bags can be made from one 15-to 20-year-old tree. In 1999, more than 14 million trees were felled to produce the 10 billion paper grocery bags used by Americans that year. One may argue, however, that trees are a renewable resource.

Wood pulp is the major component of "Kraft" paper, the familiar, rough, brown paper used to make

bags. Kraft paper is particularly noted for its strength and elasticity, both of which come from virgin pulp. Most paper bags are made from a mixture of virgin pulp and recycled paper of which the exact percent may vary. The overall environmental impact of using secondary fiber, instead of virgin resources, is significant, and the manufacturing process is cleaner due to the creation of hydropulp, which is like blending pulp with water.

In contrast, the "plastic" used in bags is high-density polyethylene, which is made from petroleum, a nonrenewable resource. Plastic grocery bags are made of primarily virgin material for strength and for the most part, recycled materials are not used in making plastic grocery bags. Further, the process of producing plastic bags is a much more efficient process. The yield from the raw material is more than 90 percent while the yield from the raw materials in the production of paper bags is closer to 75 percent.

According to the American Plastics Council, it requires 20 percent to 40 percent less energy to manufacture two plastic bags than to create one paper bag. However, a well-packed standard-size paper bag can hold up to 14 items, whereas an average plastic bag often holds only three to five items. So, one could argue that even if the plastic bag takes 20 to 40 percent less energy to produce, three to four plastic bags may be used for every one paper bag. Therefore, paper bags actually consume less energy during the manufacturing process.

Consider the emissions of production, plastic bag manufacturing releases 92 percent fewer emissions into the air than paper bag production. During paper production a variety of byproducts are produced. Most are basic chemicals that come out in the sludge and the wastewater, and most byproducts are recovered.

**The Reduction of Trash**

Now that you are clear (it’s more likely that I have confused you more) on your decision made solely based on the use of resources, the decision is made more complicated based on your actions once you leave the store. Although both can be recycled (which I am sure that you do), many bags of both types end up in landfill. And, once in the landfill, both plastic and paper bags are biodegradable—but not necessarily during your lifetime.

Modern landfills are designed to prevent materials from degrading and contaminating groundwater, so nothing—not even grass clippings—breaks down fast enough to affect landfill space. To put the size, weight and volume into perspective: 2,000 plastic bags weigh only 30 pounds, while 2,000 paper bags weigh 280 pounds and take up considerably more room. A stack of 2,000 paper bags stands about seven feet high; a stack of 2,000 plastic bags measures 7 1/4 inches. One truck load will hold about 1 million plastic bags. The same number of paper bags would take up six trucks. Fewer trucks on the road means less gas used and fewer greenhouse gases emitted in transporting the bags. With these numbers in mind, plastic grocery bags generate 80 percent less solid waste, based on weight, than paper bags.

To counter the volume argument, the Paper Bag Council of the AFPA states that this statistic presumes that all paper and plastic bags end up in landfills. One point is that a higher percentage of paper bags are recycled, therefore, the 80 percent less solid waste may be skewed in favor of plastic bags. A second point is that all of the plastic bags do not make it into the landfills, but rather end up in our lakes, rivers, oceans, and forests, where they pose hazards to wildlife as well as to those environments.

**Your Responsibility of Reusing**

Whether paper or plastic, grocery bags can be reused in an endless number of ways. Many supermarket chains encourage reuse of bags or used cardboard boxes by offering incentives to customers who provide their own. If every bag were used just twice, the number of bags used per year would be cut in half. Think about it. The 600 to 1,200 figures for the family of four would change to 300 to 600! That 40 billion number would turn into 20 billion! Now that is a significant impact!

Paper and plastic bags are both strong and flexible, enough to hold dry trash and to store other objects, from toys to tools. Some other ways to reuse your plastic bags are to store paintbrushes overnight, protect water and gas valves in the wintertime, line a bicycle pack or backpack, or pick up dog waste. Paper bags, which do not hold up as well with moisture, can be used for creative projects. They make great templates for drawing or writing and can be used to make baskets, book covers or other craft items. Paper bags are also biodegradable, which means that they can be composted. Gardeners can throw garden clippings into a paper bag, then put the whole package into a composting bin, which hastens the breakdown of the bags. Paper bags can also be used as a weed control, breaking down over time.

**Recycle, Recycle, Recycle (And Use Recycled Products)!**

All paper and most plastic bags are recyclable, however, about 45 percent of all paper products are recycled, while only five percent of plastics get recycled. This is the big advantage of paper over plastic. Almost all curbside pickup and recycling centers allow customers to mix paper bags with their newspapers for recycling; some even request that other paper items be placed in paper bags.

Fewer places accept used plastic bags for recycling. Many grocery stores recycle plastic bags, but they need to be clean and dry when they're placed in the bin. Some stores discontinued plastic bag recycling programs because a significant percentage of the returned bags were contaminated with food, water, or even dirty diapers and hypodermic needles.

Until recently, the market for recycled plastic bags has been small. Relatively few plastic bags will ever be recycled into their original form because the process is too costly, and the resulting bags would lose too much strength. But rapid changes in the recycling industry may mean it will be easier to recycle plastic bags (called "film" by recyclers) in the not-so-distant future. The recycling market for plastic bags has grown significantly in recent years. These plastic films include a broad spectrum of packaging types, from stretch and shrink wraps to large custom bags, as well as the common grocery bag. The increased used of plastic films is attributed largely to their low cost, durability and lightweight. Also, companies such as Trex Inc. in Winchester, Va., are making a wood-polymer lumber that consists of half wood and half recycled plastic film. The impact on recycling has been huge. Trex alone buys about 30 million pounds of recycled plastic grocery bags—at 3 cents a pound—each year from grocery stores in the United States.

This composite lumber saws, planes and nails just like wood. Advantages include being able to withstand harsh weather, moisture, termites and other pests, fading from the sun, and can be made in course non-slippage texture for excellent traction. It contains no chemicals and is splinter free.

**After all This, "What Should I Choose?"**

The best choice is the reusable cloth bags!

We, as a society, just can't seem to make that leap. We seem to love the convenience of paper or plastic, even if the question causes angst. According to the Grocery Industry Committee on Solid Waste, less than one percent of shoppers consistently use cloth bags. Many shoppers find these bags too bulky to carry, forget to bring them or simply can't be bothered.

So the next time you're asked "paper or plastic?" choose whichever type of bag fits your needs. Reuse it as many times as you can. Recycle it when you're done with it. Consider becoming part of the one percent of shoppers that use cloth bags. And next year, with your help, maybe we'll start to make a dent in those 40 billion grocery bags.

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